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OF THE

STATISTICS AND RESOURCES

OF THE

Cincinnati and Great Northern

RAILROAD.

CINCINNATI:

WRIGHTSON & Co., PRINTERS, 167 WALNUT STREET.

1871.

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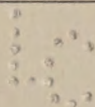
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Cincinnati and Great Northern Railroad.

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EXPOSITION

OF THE

Cincinnati and Great Northern

RAILROAD.

WHAT IS ITS OBJECT?

The object of the Great Northern Railroad is to make the *most important and profitable link* in the great axial line from the central city of the Ohio valley to the central port of the great lakes. If we are correct in this statement, and if there be no such line now in existence, then it follows, of course, that such a line is needed, and that it will amply repay the capital invested. We think that is demonstrable, and in order to understand the case, let us notice first the geographical and commercial relations which exist between the Ohio valley and the lakes. Between them there is literally no axial line, unless we consider the Illinois Central as such; but that is only between the mouth of the Ohio and the southern extremity of Lake Michigan. It does not touch any part of the great lake line, which goes

through the Straits of Mackinaw on one side to Lake Superior and the North-west, and on the other to Lakes Huron, Erie, and Ontario. The short line from Cincinnati to Toledo does not supply the want of such a trunk line at all. It simply goes to one of the ports of Ohio on Lake Erie. There is, therefore, no such line as we have described and there can be no serious competition with it when made. An axial line from the center of the Ohio valley to the center of the lakes, is, therefore, a railroad need, and will begin with the immense advantage of being the *only line* which will connect the commerce of the great lakes and of the railroads of Canada with the great commerce and population of the Ohio valley. Nor is this all; it will be part of the grand axial line which will connect the Northern lakes with the Southern Atlantic; for a Southern Railroad from Cincinnati will, in some way, be made, and then nothing on this continent or in Europe will equal in its importance or the magnitude of its triumphs—the great central line from the Straits of Mackinaw through the Ohio valley to the Southern Atlantic. Let us consider first, the *whole* line geographically and commercially. That we may have a clear view of the part this Company is engaged in, consider that at the Straits of Mackinaw the whole system of land and water in the North concentrates; the three great lakes, Superior, Huron, and Michigan lie around and point to Mackinaw, covering eighty thousand square miles of surface; they make vast inland seas, whose commerce every year is rapidly increasing, and on whose shores towns and cities are fast springing up. On the North and East is the

immense region of Canada. On the West the mineral peninsula of Michigan. Far in the Northwest around Lake Superior, lies that land of mild climate and rich vegetation which is hereafter to be the great wheat region of this country. All the products of this vast country will in future years be borne on the waters of the lakes, either to or by the Straits of Mackinaw. Looking to the South we see in the midland country the great valley of the Ohio, with 230,000 square miles of the richest lands, and the greatest coal beds, with one of the densest populations of this country. There is Cincinnati, with its surroundings, of 300,000 inhabitants, seeking to extend its arms to the far North on the one side, and the far South on the other. Looking again to the Southern Atlantic, we see all the Southern States, and especially those of Florida, the Carolinas, and Georgia, anxious to connect themselves with the valley of the Ohio, and especially with Cincinnati, and thence to the farthest North and Northwest. We see, then, that if this grand axial line can be completed, there will be no equal to it on the globe. We say this advisedly.

In this country there has been a rage for making railroads, East and West, and this was natural and reasonable, for the great market for Western produce was on the Eastern Atlantic, and the great bulk of merchandise was received from there; but those roads were almost exactly on the same lines of latitude, and it seems not to have been remembered that an axial line which crossed all lines of latitude, must necessarily create more business than any other, because of its continual interchange of different

products. If an axial line is made in its wholeness, it will pass through *fifteen degrees* of latitude, whose products are enumerated in the following table :

STATES.	LATITUDE.	PRODUCTIONS.
Florida -----	31° ---	Oranges.
“ -----	31° ---	Sugar.
“ -----	31° ---	Cotton
Alabama -----	32° ---	Cotton and corn.
“ -----	33° ---	“ “
“ -----	34° ---	“ “
Tennessee -----	35° ---	“ “
“ -----	36° ---	Cotton, corn, tobacco, iron.
Kentucky -----	37° ---	Corn, tobacco, coal, iron, horses, mules.
“ -----	38° ---	Corn, wheat, tobacco, cotton, hemp, iron.
Ohio -----	39° ---	Wheat, corn, hogs, cattle, wine.
“ -----	40° ---	Wheat, corn, hogs, cattle, flax.
“ -----	41° ---	Wheat, corn, cattle.
Michigan -----	42° ---	Wheat, corn, hay, wool.
“ -----	43° ---	Pine, cedar, coal.
“ -----	44° ---	“ “ “
“ -----	45° ---	Pine, hemlock, cedar.
“ -----	46° ---	Pine, copper, lead, fish.

This statement is enough to show a most extraordinary stimulus to commerce on a line of railway. In two days any inhabitant on that line may be supplied from their native source with sugar, cotton, corn, wheat, tobacco, iron, coal, lead, copper, pine, cedar ; with wool, flour, hemp, and fruits of every description ; with fish from the sea and fish from the lakes ; with bread, oil, and wines ; in fine, with every thing that supports, clothes, or houses men ; with every thing which supplies his wants or contributes to his material happiness. Now we unhesitatingly say that this makes the Cincinnati and Great Northern line far superior to either of the Pacific roads. They with all the East and West lines, pass over the same lines of latitude, and

therefore do not and can not furnish an equal amount of the materials of traffic which will be furnished by a North and South line. The entire arterial line, from the Straits of Mackinaw to Pensacola, will not exceed 1,200 miles, which is only half the distance from New York to San Francisco over the Pacific road, and yet we say without any fear of contradiction, that a railroad from Mackinaw to Charleston, Savannah or Pensacola, will have double the traffic which can pass over the present Pacific road. The whole distance from the Straits of Mackinaw to Savannah (running at the rate of the Pennsylvania road) can be run in (40) forty hours. The northern, the central, and the southern climes will be passed through with only a single night intervening! In two days the citizen of the North or South may traverse sixteen degrees of latitude, six States of the Union, and be carried through all the varieties of products, agricultural and mineral, which the United States produce. This can not be said of any other line of railway in the United States, made or projected. Considering the line as a UNIT from Mackinaw to Pensacola or Savannah, or New Orleans, *it can not be equaled in extraordinary results by any other line in North America.*

Such is the general *object* and necessary results of a great axial line from the center of the great Northern lakes to the center of the valley of the Ohio and the Southern Atlantic. The immediate object of the Cincinnati and Great Northern is to complete the unfinished part in the State of Ohio; but that part, as we have remarked, is the most important and the most profitable, because it lies in the most populous and grain bearing district between Mackinaw and the

South. The other parts of the grand line are provided for and will be made by other companies, so that a short time must elapse before the great North and South axial line, in the very heart of the United States, and without a competitor, will be complete. The part about to be built in Ohio by the Great Northern company is 198 miles (viz.: from the Michigan line to Cincinnati), of which 55 miles have been graded, and a large amount of work done on the line north. The line will connect at Cincinnati with the Tunnel. The distance of the whole line, and of the parts from Mackinaw to Savannah or Pensacola are as follows:

Whole Line.....	1,250 Miles.
Completed of this line.....	750 "
To be made.....	500 "

Of the part to be made, 250 miles are in Michigan, for which ample provision has been made, and a large part of the residue in Kentucky and Tennessee, for which sufficient charters and much means are all ready. If the small part in the State of Ohio can be completed, it will secure the whole. The part which lies in Ohio is from Cincinnati to the State line of Michigan, and the distance, as surveyed, is as follows:

Cincinnati to Dayton.....	52 $\frac{1}{4}$ Miles.
Dayton to Greenville.....	35 "
Greenville to Celina (Mercer county).....	31 "
Celina to Van Wert.....	22 $\frac{3}{4}$ "
Van Wert to Paulding.....	18 $\frac{3}{4}$ "
Paulding to Bryan (Williams county).....	22 $\frac{1}{2}$ "
Bryan to Michigan State line.....	15 $\frac{3}{4}$ "
Total.....	198 "

From Greenville to Cincinnati there is already a railroad line, but the company have power and reserve the right to finish an independent line to Cincinnati, should circum

stances make it expedient, and if so, they will have superior advantages in the Tunnel about to be completed. From the Michigan State line to Mackinaw there are ample grants of public land, and a part is already made. The first object of the Great Northern Company is, to complete the link between Cincinnati and the Michigan line.

2. PRESENT CONDITION OF THE WORK.

The road from Greenville to Van Wert had been nearly graded by the Cincinnati and Mackinaw company, and an ample subscription has been raised along the line to complete. On 53 miles, therefore, or nearly half the present line in Ohio, the road is ready for the iron. North of this to the Michigan line, considerable grading has also been done. The present condition of this work offers the greatest possible advantages to the new company. With part of the work done; with almost a straight line; with little curvature and low grade—no enterprise in the country offers better prospects to the projectors. But it is not in this light only we wish to consider it. It is but part of a grand work, which, as we have explained, must be of immense advantage to the country, of immense magnitude in commerce, and if that be true, of great profit to the owners. Hence, we shall now consider its advantages, both as a through and a local line.

3. ADVANTAGES OF A THROUGH LINE.

1. As a through line, the Cincinnati and Great Northern road will make the ONLY ARTERIAL LINE NORTH AND SOUTH which can be made east of the Mississippi river. If any

one doubts that, let him take a map and consider this proposition. A road from the Ohio to Erie, to Cleveland, to Toledo, or Chicago, does *not* constitute a complete line from the axis of the lakes to the Ohio river. Erie, Cleveland, Toledo, are on the southern shore of Lake Erie, and Chicago at the extreme southern end of Lake Michigan. No road to them can connect with the great Canada lines, or reach the great line of navigation which does (and must hereafter to a tenfold greater degree) traverse lakes Superior and Huron. Only one of those places (Toledo) has a direct line to the center of the Ohio valley. Half of North America is north of Toledo and Chicago, and a large part of it must in future years grow populous and become a wheat bearing country, and no road can connect this country with the South, but one to the Straits of Mackinaw. This road will be the **ONLY** one by which Southern productions, such as cotton, sugar, and coffee, can be supplied *directly* to the immense region of country (soon to have millions of people) which lies round lakes Superior and Huron. The statistics of Canada West show that it is growing with great rapidity, and we learn ("from Blodgett's Climatology") that the climate around Lake Superior is so mild that it permits the same culture and population as we now see in New York and New England. Hence, assuming Cincinnati and Mackinaw as the two points to be connected, the railroad line which connects them will be an **ARTERIAL LINE**, to which there can be no equal, except the one which passes East and West through the great cities.

2. In connection with these facts must be taken into view

the railroad CONNECTIONS between the systems of road in the British possessions and those in the Ohio valley. Such a connection must exist hereafter, and it will soon become imperative. The British possessions, as we have already intimated, can not get the productions of the South by the St. Lawrence, or Boston or New York, as quickly or as cheaply as by a direct route from Detroit or Mackinaw to the heart of the South. Already the Grand Trunk Railway of Canada has penetrated the whole length of Canada to Sarnia, at the southern end of Lake Huron, and there connects with the steamers and vessels navigating that great inland sea. Crossing the river at Port Huron, it has proceeded due West 50 miles, till it has reached La Peer. A few miles more it will cross the line of the Cincinnati and Great Northern road. Thence to Cincinnati only remains to complete this line, we have described from Greenville to the State line of Michigan, in order to connect the whole railroad system of the Dominion immediately with Cincinnati. The effect, then, of completing the Great Northern in Ohio will be to make it a GREAT THROUGH ROUTE connecting the British Dominion with our Southern States. The magnitude of such a traffic can scarcely be imagined. For it is beyond a doubt that the whole supply of Southern productions for the British Dominions would pass over that road.

4. ITS ADVANTAGES AS A LOCAL LINE.

The way traffic on this road, in both freight and passengers, must be beyond the general average of local traffic, for reasons which we will now consider:

1. The LUMBER TRADE will be immense. Cincinnati must hereafter be supplied with lumber almost wholly from the peninsula of Michigan, and as that grows scarce, from the British dominions. The supply of pine lumber from the upper Ohio valley has greatly diminished and must soon cease, while that from the upper Mississippi is too distant and can not compete at all with that from Michigan and Canada. Already Cincinnati and all the towns in Southern Ohio receive large quantities of lumber from the North. The Miami valley must be supplied from that region, and this traffic alone will soon give employment to one road. It is proved by statistics that the towns of the Miami valley consume one-fourth as much lumber as Cincinnati, and that a growing population of 200,000 requires 100,000,000 feet of lumber. There is double that number now in the Miami country, and half as much more on the Kentucky side, to be reached through Cincinnati. We shall not over state the matter when we say that 300,000,000 of feet of lumber will be required in the region round Cincinnati, to be brought from the North. It is not long since it was questioned whether railroads *could* carry lumber; but the experience of the Erie Railroad has completely demonstrated that. The average distance of carrying lumber from the pine region to Cincinnati will be 350 miles, and profitably paid at \$6.00 per 1,000 feet, which will make \$1,800,000 for the whole amount brought. If we suppose the Cincinnati and Great Northern road carried but half of that, and from its directness it must have a superiority over all competitors, it would receive (counting the whole line) nearly a million of dollars from that source.

2. The distribution of coffee, sugar, cotton, and groceries, to the intermediate country will make another great source of business. The reports of the Chamber of Commerce at Cincinnati show that the imports and exports of these articles at that port have constantly and greatly increased from year to year. The distribution of them is to each section, in proportion to the *consumption*. After allowing for all possible competition from Louisville and Chicago, it is certain that the whole region from Toledo to Michigan City, and south to Cincinnati, must be supplied from this city; hence the Cincinnati and Great Northern road will have all of this traffic, which lies in its own proper section, without competition. Heretofore that section has been without railroads, but when the Great Northern is made, it will, of course, increase the growth, and therefore the consumption of products, with great rapidity. The traffic for local consumption will therefore be not only great but fast growing.

3. The distribution of manufactures, especially of iron, wood, and tobacco, will amount to a large tonnage. Estimating by the former tonnage of the canal to Toledo, and the great increase of population since, we think that not less than 40,000 tons of these articles will be distributed by the Great Northern road.

4. The local traffic in produce from Greenville to Lansing, and only in a breadth controlled by the road, is at least the business of 390,000 people. Estimating their productions as equal to that of the same number of people in Indiana and Illinois, there will be 200,000 tons of surplus produce to be carried off. No doubt there will be

competition for this from the Toledo, the Michigan Southern, and the Fort Wayne roads, but it will be within bounds to say that half of this (100,000 tons) will be carried by the Great Northern. The receipts from this source can not be counted at less than \$250,000 per annum.

5. Local traffic in people furnishes all railroads with a large portion of their business. The experience of railroads shows that the number of local passengers average 60 per cent. of the population. If the population within the influence of the Great Northern from Greenville to Lansing be, as we have estimated, 390,000, then there will be 232,000 local passengers, who will average three cents per mile on half the road, which is 135 miles (it being 270 from Cincinnati to Lansing). This will give in that distance, \$765,000. The rapid growth of the country, which must ensue by the making of this road, will greatly increase this branch of its business.

From these general considerations it is very evident that if we confine ourselves to the part of the Great Northern between Cincinnati and Lansing, 270 miles, the local receipts only can not fall short of \$2,000,000. If this seems large, it must be recollected that from Michigan, North-west Ohio, and North-east Indiana, there is now really no great railroad line to the central city of the Ohio valley or to the South. There has been no development of the trade of that region in that direction, and that the road will pass through a most fertile country, rapidly growing up with a thrifty people and having on the North the great lumber region, with whose produce Cincinnati must be supplied; and on the

South the region and ports from which Southern products must come. To prove this more in detail, we shall furnish here some tables, which can not be controverted, and which demonstrates more than all we have said.

5. THE AGGREGATE RESOURCES OF THE GREAT NORTHERN DEMONSTRATES:

1. Assuming the Great Northern to control only a part of the Cincinnati and Mackinaw which lies between Dayton and Lansing (a distance of 270 miles), the following tables will show the population, products and commerce of the region belonging to it, the proportion of local passengers resulting from that population, the annual increase of consumption and production, and the average annual increase of business on established railroads.

TABLE 1. GROWTH OF POPULATION AND PRODUCTION ON THE LINE.

On the line of the Great Northern from Dayton to Lansing, and not competing with other roads, are (in Ohio) the counties of Darke, Mercer, Van Wert, Paulding, Defiance, Williams, and half of Montgomery ; in Indiana the counties of Randolph, Jay, Adams, Dekalb, and Steuben ; in Michigan the counties of Hillsdale, Jackson, Ingham, Branch, Calhoun, and Eaton. This district comprises 10,000 square miles, and its growth in the last twenty years has been as follows :

YEARS.	POPULATION.	GRAIN PRODUCTS.
In 1850-----	194,640	8 704,000 bushels.
In 1860-----	299,044	14,666,000 “
In 1870-----	387,604	23,000,000 “
Increase -----	100 per cent.	162 per cent.

This table proves what all the statistics furnished by the Census proves, that *production* increases much faster than population, especially in the newer parts of the country. All the above products are consumed by men except oats, which make a comparative small part; and corn, a portion of which is consumed in meal, and a large part in the manufacture of whisky, which in its turn makes a large article in transportation. Taking the consumption of men and of stock animals out of the above products of 1870, and there remains at least 10,000,000 bushels of grain, or the products of grain, for transportation to a market. This makes over 160,000 tons of produce on the immediate line of the road from Dayton to Lansing, which must be transported to market.

TABLE 2. THE GROWTH OF COMMERCE BETWEEN THE LAKES AND THE OHIO VALLEY.

The commerce between the lakes and the Ohio valley is carried on by the railroads and the canals; and the increase of the markets for produce and groceries whether they be West or East, is fairly represented by the increase of commerce at Cincinnati. The statistics of these

have been kept for many years, so that we can ascertain the *proportions* of increase in this trade, and thus deduce the *increase* of commerce, a large part of which may be expected for the Cincinnati and Great Northern road.

INCREASE OF TONNAGE ON RAILROADS FROM THE
LAKES TO THE OHIO.

RAILROADS.	TONNAGE IN 1859.	TONNAGE IN 1869	INCREASE.
Cleveland, Col. & Cin---	255,688 tons.	831,644 tons.	210 per cent.
Cin., Ham. & Dayton--	268,819 "	419,650 "	57 "
Cin. & Sandusky-----	84,227 "	235,937 "	180 "
Dayton & Michigan---	50,000 "	337,839 "	500 "
Little Miami, & Col---	303,616 "	476,542 "	60 "
Sandusky & Newark---	91,400 "	109,905 "	20 "
Total-----	1,053,750 tons.	2,411,217 tons.	130 per cent.

Two of the above roads carry some Eastern freight, but all of them have their *termini* on Lake Erie and Cincinnati. The Toledo road had just been finished, and almost its whole business is a new creation, arising from the very region of country we are now considering. This table is very important in showing both the rapid progress of railroad business, and the rapid development of production in the lake region. Two great facts are conclusively proved by it: 1. That if we suppose a railroad made between the lakes and the Ohio valley, with almost no business in the first year, *in ten years the increase of business* (130 per cent. as the aggregate of North and South roads,) *would give a remunerative traffic*; and 2. That if the development of the country round the shores of Lakes Michigan, Huron

and Superior be any thing like what it has been on the shores of Lake Erie, that the Cincinnati and Great Northern road, and *all the roads yet made or suggested will not be able to do the business which will arise.* Lake Erie is small compared with Lakes Huron and Superior. Yet, on the southern shore of Lake Erie have arisen three cities, with four railroads to the Ohio valley. We say, then, that not only is the Cincinnati & Great Northern road *needed*, but that when made it will not be able to do the immense business which will arise between the lakes and the Ohio valley

Let us now look at the increase of commerce in Cincinnati, which may be taken simply as the representative of the great markets of the Ohio valley. The following table shows the values of imports, exports, and manufactures of Cincinnati for the year 1860 and 1870:

YEARS.	IMPORTS.	EXPORTS.	MANUFACTURES
1860 -----	\$ 90,198,136	\$ 67,023,126	\$ 60,000,000
1870 -----	312,978,665	193,517,690	127,459,021
Increase-----	137 per cent.	190 per cent.	112 per cent.

Thus we have in another form the precise demonstration furnished by the former table. While ten years give an increase of 130 per cent. in railroad business to the lakes, the same ten years give an average of 150 per cent. in the business of Cincinnati, the representative market of the Ohio valley. The increase has come entirely from the North, for she has as yet no Southern road, nor will she

have until the Cincinnati and Great Northern Railroad to the South Atlantic makes part of it. The tables above prove conclusively, as much so as a mathematical demonstration, that the vast increase of business between the lakes and the Ohio valley demand imperatively a great axial line from the center of the lakes to the Ohio valley, and that line will be one of the greatest, the most important, and the most profitable within the United States.

TABLE 3. SHOWING THE NUMBER OF LOCAL PASSENGERS TO THE SQUARE MILE.

ROADS.	SURFACE DRAINED.	NUMBER OF LOCAL PASSENGERS.
Cleveland & Columbus-----	5,000 sq. miles.	350,000
Sandusky & Dayton-----	6,000 "	200,000
Dayton & Michigan-----	6,500 "	150,000
Little Miami-----	4,000 "	350,000
Cleveland & Pittsburg-----	8,000 "	500,000
Total-----	29,500 Sq. Miles.	1,550,000 Local Passengers.

The States of Ohio, Indiana, and Michigan are so nearly alike in soil, fertility and climate, that we may safely assume that the population on the line of the Cincinnati and Great Northern Railroad will be fully equal to either of the other lines. It is now fast approaching the same density of population. Then we find from the above table the 29,500 square miles gives 1,550,000 local passengers, which is 51 to a square mile. The 10,000 square miles on the line from Dayton to Lansing will therefore furnish 510,000 passen-

gers which will go over some part of the line when that district contains the same density of population, which at the present ratio of growth it must have in a short time. The Cincinnati and Sandusky road carried 241,500 (almost all of whom were local) on 156 miles of road, in a section of country not more populous than that from Dayton to Lansing; and the line from Cleveland to Pittsburg carried 500,000 on a less drainage of country. With these facts before us, we consider the *average* rate as given by the above table as not too large, when the same density of population is attained. This will give 510,000 local passengers; but it will be observed that (on page 15) we made the *local* passengers at *the present population*, 232,000. Combining these ratios (which is fair when we consider the rapid impulse given to population and business by a railroad) gives us 370,000 as not exceeding the number we have a right to expect.

TABLE 4. SHOWING THE ANNUAL INCREASE OF BUSINESS ON RAILROADS.

The following table shows the statistics of *five* roads in Ohio in 1858 and 1870:

BUSINESS.	IN 1858.	IN 1870.	INCREASE.
Number of passengers-----	\$1,725,000	\$3,342,017	93 per cent.
Tons of Freight-----	1,881,108	3,512,299	90 "
Gross Receipts-----	6,055,892	14,932,943	161 "
Net receipts-----	2,730,783	5,215,998	90 "

Length of the roads, 994 miles. Total cost of road and equipments, \$58,650,000. Net receipts, deducting all expenses, \$5,215,998.

This table is invaluable to all railroad investors. It is a fair table, for one of the roads is a very poor one, one a very good one, and the others a fair average. The results of this table are these:

1. At the end of twelve years, the *new* or increased business of the roads was equal to all they had in the early period of their business.

2. That the *rate* at which railroad business *increases* is more than double the rate of increase in the whole population.

3. That the *net profit* available to stockholders has increased 90 per cent. in twelve years, or 75 per cent. in a decade, a rate almost treble that of the growth of the whole country.

4. That the net profit is nine per cent. on the whole cost. If, then, we suppose what is true of most roads, that the bonded debt is at seven or eight per cent., then the stockholders would receive nearly or quite ten per cent. Now, this is the actual result of *five average roads* in Ohio. One road in Ohio (and we admit it is the best) made a *net profit* of 20 per cent. for several years.

This is not in the above table, which is found from average roads. The roads in the table are the Central Ohio, the Cleveland and Columbus, the Lake Shore, the Pittsburgh and Fort Wayne, and the Cincinnati, Hamilton and Dayton. These make together a fair average of railroad

results. The Cincinnati and Great Northern road has not only its own peculiar advantages; but will have all and more than all the benefits which result logically and inevitably, from the several facts proved by the above tables.

TABLE 5. ESTIMATED RESULTS OF THE ROAD FROM DAYTON TO LANSING.

In the foregoing tables and observations, every element has been reduced to exactness, except the *through* business of the whole line from Cincinnati to Mackinaw, which has no parallel in the previous experience of the country. The only basis we have is in the *proportion* between entirely through business and local business on long lines. A comparison of through and way business on several long lines shows that the business which goes over the entire length of the roads is one fifth part of the whole. But in the case of the Cincinnati and Great Northern line, connecting the whole of the British possessions with the valley of the Ohio, and the Peninsula of Michigan with Cincinnati, the proportion will obviously be greater. But let us assume one-fifth of the whole business as a fair proportion; then the following table will represent the business and commercial results of the road from Dayton to Lansing, calculated on the precise facts we have given:

TABLE OF RECEIPTS.

Estimated on the statistics of the country and of railroads.

KINDS OF BUSINESS.	NUMBER.	TONS	RATE.	RECEIPTS.
Local passengers-----	370,000	-----	3 cts. per mile.	\$794,000
Through passengers-----	74,000	-----	\$6 00	444,000
Grain products-----	-----	100,000	2 50	250,000
Groceries and Manufactures-----	-----	100,000	2 59	250,000
Lumber (150,000,000 ft.)----	-----	-----	4 00	600,000
				\$2,338,000

(a) The local passengers in the above table are estimated at *one-third* (instead of one-half) the distance.

(b) The *freight* tonnage in groceries and manufactures are evidently below the mark, but let it stand as a *minimum*.

TABLE OF RECEIPTS.

For the whole distance, from Cincinnati to Lansing, based on Statistics.

KINDS OF BUSINESS.	NUMBER.	TONS.	RATE.	RECEIPTS.
Local passengers-----	472,000	-----	3 cts. per mile.	\$1,341,040
Through passengers-----	94,000	-----	\$6 00	564,000
Grain products-----	-----	128,000	2 50	320,000
Groceries and Manufactures-----	-----	128,000	2 50	320,000
Lumber (150,000,000 ft.)----	-----	-----	5 00	750,000
				\$3,295,040

This table is a *pro rata* for the increased distance on the former table. It is probable this is an *under* rather than over a fair estimate for the part between Dayton and Cincin-

nati; for if the great competition should reduce the amount of freight carried in the Miami valley, there are also the facts that the *ratio* of production there is much greater, and the *local* traffic going out of a city on any road is much greater than on an interior line. The *pro rata*, therefore, on the interior line is rather an under estimate, for the part, from Dayton to Cincinnati, even with the competition encountered there. Again, if the Great Northern is continued to Cincinnati, it will have one immense advantage, It will command the Tunnel route, which, when made, will undoubtedly control the passenger traffic. It will be much more convenient and take less time to distribute passengers from the upper level of the city.

The above tables enable us to give exact results of the business of the Great Northern, derived from the unimpeachable statistics of railroad experience, and of the production and growth of the country.

1. Results of the road from Dayton to Lansing :

1. Total cost (\$40,000 per mile)-----	\$8,800,000 00
2. Gross receipts-----	2,338,000 00
3. Expenses of operation (60 per cent.)-----	1,402,800 00
4. Net receipts-----	935,200 00
5. Net profits-----	10½ per cent.

2. Results of the road from Cincinnati to Lansing :

1. Total cost, 280 miles-----	\$11,200,000 00
2. Gross receipts-----	3,295,000 00
3. Expenses of operation (60 per cent.)-----	1,977,000 00
4. Net receipts-----	1,318,000 00
5. Net profits-----	11½ per cent.

While we have made the above tables and estimates on the most exact statistical calculation, the results are

remarkably confirmed by railroad experience, the only true test of the effect of railroads on the business of the country. The reader will find in Poor's Manual of railroads in the United States, that the *average* receipts upon all railroads is \$10,000 per mile. The average in the table above is near \$12,000 per mile; but all who look into the above tables and geography of the country, will at once see that the Great Northern is in its advantages and prospects, far above the average of roads. Again, if any one will examine the receipts of the three principal roads leading into Cincinnati, he will find their receipts to be equal to what we have estimated for the Great Northern. Thus our estimates, made in detail from the statistics of the country, correspond with the railroad experience of the country, and this without at all considering its advantages as an arterial line from the lakes to the South. But if we extend our view and consider the great central artery from the midst of the lakes to the metropolitan city of the Ohio valley, and thence to the Southern Atlantic, who can calculate the results? They are really incalculable. If the Pennsylvania Railroad, with lines equivalent to 1,200 miles of single track, earned in 1870 the enormous sum of *seventeen millions of dollars* in one year, what must be the result of the 1,250 miles from Mackinaw, through Cincinnati to Charleston and Savannah? Passing through sixteen degrees of latitude, through what must soon be the densest population of the United States, having on its own line every variety of production, and every mineral of the earth, we hazard nothing in saying that such a line of road, as a whole, must exceed in its results any line of railroad on this continent.

Confining ourselves, however, to that link of 280 miles in Ohio and Michigan, which we have here considered, we find that that alone must yield larger profits than most of the roads even in this fertile country. And we also find (by table 5) that the *net* receipts of good railroads increase at the rate of nine per cent. per annum, so that, considered only as a link in the line from Cincinnati to Michigan, few roads have offered equal advantages to this; while, as part of a grand arterial line from Lake Huron to the Atlantic, no road in the country has more brilliant prospects.

S. W. MORTON,

President of Cin. & Great Northern R. R.

APPENDIX.

After the preceding tables and estimates were fully prepared it seemed desirable to ascertain the resources and results of the sections from Greenville to the Michigan Line; and from Cincinnati to the same point. For this purpose the following tables and estimates are added :

TABLE 1.—RESOURCES OF COUNTIES ON THE LINE OF THE CINCINNATI AND GREAT NORTHERN RAILROAD FROM GREENVILLE TO MICHIGAN LINE.

COUNTIES.	POPULATION.	SQUARE MILES.	PRODUCTS.	SURPLUS.
Darke-----	32,278	600	2,131,000 bush.	1,000,000
Mercer-----	17,254	420	900,000 "	400,000
Jay (Ind.)-----	14,979	312	100,000 "	100,000
Adams (Ind.)-----	11,382	320	550,000 "	250,000
Van Wert-----	15,823	400	420,000 "	100,000
Paulding-----	8,544	400	170,000 "	-----
Defiance-----	15,719	400	550,000 "	200,000
DeKalb (Ind.)-----	17,163	200	500,000 "	200,000
One-half Henry-----	7,014	200	200,000 "	50,000
One-half Fulton-----	8,884	200	325,000 "	100,000
Williams-----	20,991	400	760,000 "	350,000
One-half Steuben (Ind.)-----	6,425	200	300,000 "	150,000
Twelve counties-----	176,456	4,052	7,210,000 bush.	2,900,000

NOTE 1. An average of 18 miles only on each side of the line is taken, which will be seen by examining a map, to take only the district in which there can be no competition. The county of Allen (Ind.), for example, is excluded, because there is a railroad thence to Cincinnati. So, also, two other counties in Indiana, for the same reason.

The "surplus" in the last column does not mean only grain, which is to be transported on railroads, but also ani-

mals and whisky, into which corn and oats go. In some shape the above surplus will be taken off. The amount is calculated by taking off all the wheat and corn necessary to support the population and the stock. The residue makes the surplus.

TABLE 2. REPRESENTS THE PROPORTION OF LOCAL PASSENGERS TO A GIVEN POPULATION.

ROADS.	POPULATION.	LOCAL PASSENGERS.	RECEIPTS.
Dayton & Michigan-----	166,178	240,000	\$253,418
Cleveland & Columbus-----	310,013	400,000	499,526
Sandusky & Cincinnati-----	213,064	360,000	241,008
Sandusky & Newark-----	116 189	174,000	160,000
Marietta & Cincinnati-----	197,845	326,000	336,000
Five Roads-----	1,003,289	1,500,000	\$1,489,952

This table demonstrates that to each *one* of the population on the road, there is ($1\frac{1}{2}$) *one and a half* local passengers; the average fare of each will be 95 cents. Assuming the average fare at 90 cents, we have the following results from Greenville to Michigan. The population is 176,456, giving 264,834 local passengers, which at 90 cents is \$238,261.

TABLE 3. ESTIMATE OF THE BUSINESS AND RECEIPTS OF THE LINE FROM GREENVILLE TO THE MICHIGAN LINE, BEING 110 MILES.

SOURCES.	AMOUNT.	RATE.	RECEIPTS.
Local Passengers-----	264,734	90	\$238,261
Through Passengers-----	5,000	\$3 00	15,000
Produce-----	100,000 tons.	3 00	300,000
Groceries and Manufactures-----	50,000 "	3 00	150,000
Miscellaneous -----	50,000 "	3 00	150,000
			\$853,261

NOTE 2. The local passengers are nearly exact. The through passengers will be unimportant, since from Greenville to the Michigan line is not a through road.

The produce will be nearly the same as if it went to Lansing. The groceries and manufactures are probably underrated. Assuming that the above table is nearly correct which we believe it to be, and since a considerable part of the work is done, lessening the cost, the following is a fair statement of the result:

Total cost of 110 miles.....	\$3,000,000
“ receipts	853,261
“ expenses (60 per cent.).....	511,956
Nett profits.....	341,305
Dividend (8 per cent.).....	240,000
Surplus	101,305

TABLE 4. RESOURCES OF THE COUNTIES ON THE LINE OF THE “GREAT NORTHERN” FROM CINCINNATI TO MICHIGAN, IN PRODUCTS AND LOCAL PASSENGERS.

COUNTIES.	POPULATION.	LOCAL PASSENGERS.	PRODUCTS.
Counties in Table 1.....	176,456	264,734	7,210,000 bushels.
Preble	21,809	32,813	1,896,921 “
One-half Montgomery.....	32,003	48,004	1,258,420 “
Butler	39,912	59,868	2,738,240 “
One-fourth Hamilton.....	65,092	97,638	305,500 “
Sixteen counties.....	335,273	503,057	13,400,081 bushels.

NOTE 3. In making an estimate from the above table, the *local* passengers may be taken as nearly exact, although it is probable that those from the county of Hamilton are underrated. But on the other hand it must be remembered that there are *seven* different railroads from Cincinnati, car-

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